DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/26/10 has been entered.

Claim Rejections - 35 USC § 103

2. Claims 21, 22, 27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kauffman et al. (U.S. Patent 4,384,904) in view of Harwood et al. (U.S. Patent 5,728,476).

Kauffmann discloses a method for making a multilayer surface covering product comprising a backing including a support material with a foam layer thereon and at least one wear layer wherein the method consists essentially of the steps of preheating the backing at a temperature within the range of 93 to 260 °C thereby including 100 to 130 °C to cross-link and/or expand the foam, cooling the preheated backing, applying and attaching a wear layer by conventional means including the application of heat by reheating within the temperature range of 93 to 260 °C, and necessarily cooling the product to a temperature close to room temperature so that the product is useful as a surface covering (Column 6, lines 36-51 and Column 7, line 39 to Column 8, line 23).

As to the limitation of "the method consists essentially of the following steps:", the phrase consisting essentially of limits the scope of the claim to the specified materials or steps and those that do not materially affect the basic and novel characteristics of the claimed invention. Applicants describe preheating the backing at (16) and applying the wear layer at (28) in the Figure where because the backing is not heated for a time before application of the wear layer the backing is cooled similarly to that of Kauffman teaching cooling such that the cooling in Kauffman is not considered to materially affect the basic and novel characteristics of the claimed invention. Further, "the preheated backing" as recited in the cold application step is considered to simply refer to the backing of the preheating step, i.e. a backing that is preheated is now the preheated backing, without expressly or implicitly requiring any of the heat from preheating is necessarily retained until the cold application step. However, in the event some amount of heat were implicitly considered required by the claim to be required at the cold application step the following rejection is made. Kauffman recognizes the backing need only be "partially cooled" (Column 7, lines 66-68) which would meet the limitation as "partially" is understood by one of ordinary skill in the art as teaching the backing is not completely cooled, and it would have been obvious to one of ordinary skill in the art at the time the invention was made that the cooling of the backing in Kauffman is by only partially cooling as suggested by Kauffman for the obvious benefit that the reheating taught by Kauffman requires less energy for a partially cooled backing than for a backing completely cooled to room temperature.

As to the limitation of "an olefinic polymeric backing selected from the group consisting of homopolymers or copolymers of ethylene, propylene, and butylene", "at least one wear layer comprised of ionomeric copolymers", "cold application of the bottom surface of the wear layer

on the preheated backing to make a wear layer-backing assembly" and "melting the wear layer at a temperature between 120 °C and 180 °C in order to ensure it adheres with the backing", Kauffman does not require any particular support material of the backing teaching any of those normally used. Kauffman does not require any particular wear layer teaching they are well known in the art and suggesting as typical those based on polyvinyl chloride (PVC) where the application of the wear layer is by conventional means (Column 6, lines 36-51). Harwood teaches a similar surface covering having good visual appearance and good burn, abrasion, and stain resistance without inclusion of PVC which yellows and contains volatile organic compounds where the backing comprises an ethylene copolymer including as a support for a foam layer and the wear layer having a top surface and a bottom surface is considered either a combination of upper ionomeric copolymer layers (such as Example 1) including a decorative layer, and a face ply or alternatively as simply at least one layer of ionomeric copolymer where the layer(s) are attached to the backing by hot (thermal) lamination at 120 to 170 °C and specifically at 130 °C as in the Example 1 without preheating considered a cold application of the bottom surface of the wear layer on the backing to make a wear layer-backing assembly and the hot (thermal) lamination is at a temperature between 120 and 170 °C such as 130 °C a temperature above the melting points of the specific materials described for use as the ionomeric copolymer (i.e. Surlyn 9910 melting point of 86 °C) and the resin of the face layer (i.e. Lotryl 18MA02 melting point of 87 °C) such that the hot (thermal) lamination is considered to melt the wear layer at a temperature between 120 °C and 180 °C in order to ensure it adheres with the backing (Column 1, lines 33-48 and Column 2, lines 33-36 and Column 3, lines 51-60 and Column 4, lines 8-21 and Column 6, line 14 to Column 7, line 15 and Example 1). It would have

been obvious to one of ordinary skill in the art at the time the invention was made to use as the support material of the preheated backing and as the wear layer in Kauffmann the specific materials for each as set forth by Harwood and attached by hot (thermal) lamination such as at 130 °C within the reheating range suggested by Kauffman to form the surface covering having good visual appearance and good burn, abrasion, and stain resistance without inclusion of PVC which yellows and contains volatile organic compounds.

Regarding claim 22, the bottom surface of the wear layer in Kauffmann as modified by Harwood includes a face layer comprised of olefinic copolymers.

Regarding claim 27, the olefinic polymeric backing taught by Harwood comprises mineral fillers such as calcium carbonate.

3. Claims 21, 22, 27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harwood et al. (U.S. Patent 5,728,476) in view of Kauffman et al. (U.S. Patent 4,384,904) and Remmert (U.S. Patent 3,829,343).

Harwood teaches a method for making a multilayer surface covering product comprising an olefinic polymeric backing including an ethylene copolymer support and a layer of polyurethane foam thereon and at least one wear layer comprised of thermoplastic ionomeric copolymers including layers of ionomeric copolymer, a decorative layer also of ionomeric copolymer, and a face layer or alternatively simply at least one layer of thermoplastic ionomeric copolymer where the wear layer necessarily has a top surface and a bottom surface wherein the method consists essentially of cold application of the bottom surface of the wear layer, i.e. the wear layer is not preheated, on the backing to make a wear layer-backing assembly and hot (thermal) lamination at 120 to 170 °C and specifically at 130 °C as in the Example 1 where hot

(thermal) lamination is at a temperature above the melting points of the specific materials of the wear layer described for use as the ionomeric copolymer (i.e. Surlyn 9910 melting point of 86 °C) and the resin of the face layer (i.e. Lotryl 18MA02 melting point of 87 °C) such that the hot (thermal) lamination is considered to melt the wear layer at a temperature between 120 °C and 180 °C in order to ensure it adheres with the backing, and necessarily cooling to bring the product to a temperature close to room temperature so that the product is useful as a surface covering (Column 1, lines 33-48 and Column 2, lines 33-36 and Column 3, lines 51-60 and Column 4, lines 8-21 and Column 6, line 14 to Column 7, line 15 and Example 1).

As to the limitation of "preheating the backing at a temperature between 100 °C and 130 °C", Harwood teaches the lamination of all of the individual layers of the backing and wear layer as set forth above is between heated rollers in a multi-stage or single stage operation without specifically further describing the multi-stage operation (Column 6, lines 41-44). Kauffman is exemplary of a conventional multi-stage laminating operation to form a similar surface covering where the support for the foam layer and the foam layer are laminated in a first stage operation (Column 6, lines 46-69) to form a backing where the backing is then laminated to the wear layer in a subsequent second stage operation (Column 8, lines 17-22). Further, it is known in the art as taught by Remmert of roll laminating a polyurethane foam analogous to the polyurethane foam taught by Harwood to a thermoplastic layer analogous to the wear layer taught by Harwood including such as in similar surface coverings as Remmert suggests carpet for a non-breathable product to pre-heat the foam at the melt lamination temperature of the thermoplastic layer followed by cold application of the thermoplastic layer thereto and then melting and pressing the thermoplastic layer thereon to adhere the thermoplastic layer and polyurethane foam without

having to melt or decompose the polyurethane foam (Figure and Column 3, line 4 to Column 4, line 26 and Column 5, lines 17-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to hot (thermal) laminate the backing and wear layer in a multi-stage operation as taught by Harwood by the known two stage operation of laminating the support and foam layer to form the backing followed by laminating the backing to the wear layer taught by Kauffman for predictably laminating the layers as required in a multi-stage operation where laminating the backing including the polyurethane foam layer to the thermoplastic wear layer by sending all of the layers between heated rollers as taught by Harwood would have included pre-heating the foam layer to the melt lamination temperature of the thermoplastic wear layer such as 130 °C followed by cold application of the wear layer thereon and melting of the wear layer in the roll pressing to adhere the wear layer and polyurethane foam of the backing without having to melt or decompose the polyurethane foam as suggested by Remmert.

Regarding claim 22, the bottom surface of the wear layer in Harwood includes a face layer comprised of olefinic copolymers.

Regarding claim 27, the olefinic polymeric backing taught by Harwood comprises mineral fillers such as calcium carbonate.

4. Claims 23, 26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kauffman and Harwood as applied to claims 21, 22, 27, and 29 above, and further in view of Kajikawa et al. (U.S. Patent 4,872,930).

Kauffman and Harwood as applied above teach all of the limitations in claims 23, 36, and 28 except for a specific teaching that the support of the backing and the bottom surface of the wear layer are formed of low density polyethylene (LDPE). Harwood teaches each of the layers

are formed of thermoplastic polymers such as ethylene vinyl acetate (EVA) reinforced with filler such as calcium carbonate (Column 5, lines 27-42 and Column 6, lines 14-34). It is well known in the art of surface coverings that thermoplastic layers reinforced with filler such as calcium carbonate including for use such as in the backing utilize any of EVA, LDPE, etc. as the thermoplastic as evidenced by Kajikawa (Column 2, line 67 to Column 3, line 9 and Column 8, lines 22-30 and Examples 2 and 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the thermoplastic of the support of the backing and the bottom surface of the wear layer in Kauffman as modified by Harwood those materials well known within the art as predictable for use in the alternative to EVA such as LDPE as evidenced by Kajikawa.

5. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kauffman and Harwood as applied to claims 21, 22, 27, and 29 above, and further in view of Yatsuka et al. (U.S. Patent 5,278,275).

Kauffman and Harwood as applied above teach all of the limitations in claims 24 and 25 except for a specific teaching of the top surface of the wear layer coated with polyurethane. However, including polyurethane as a layer in the wear layer is well known in the art as evidenced by Kauffman (Column 6, lines 36-45), and coating a layer with a polyurethane topcoat is known in to improve the heat resistance, light resistance, and toughness of the underlying material as evidenced by Yatsuka (Column 1, lines 6-21). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the wear layer taught by Kauffman as modified by Harwood a top coated surface of polyurethane as such is not only

conventionally known for inclusion in the wear layer as evidenced by Kauffman but improves the heat resistance, light resistance, and toughness of the wear layer as evidenced by Yatsuka.

6. Claims 23, 26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harwood, Kauffman, and Remmert as applied to claims 21, 22, 27, and 29 above, and further in view of Kajikawa et al. (U.S. Patent 4,872,930).

Harwood, Kauffman, and Remmert as applied above teach all of the limitations in claims 23, 36, and 28 except for a specific teaching that the support of the backing and the bottom surface of the wear layer are formed of low density polyethylene (LDPE). Harwood teaches each of the layers are formed of thermoplastic polymers such as ethylene vinyl acetate (EVA) reinforced with filler such as calcium carbonate (Column 5, lines 27-42 and Column 6, lines 14-34). It is well known in the art of surface coverings that thermoplastic layers reinforced with filler such as calcium carbonate including for use such as in the backing utilize any of EVA, LDPE, etc. as the thermoplastic as evidenced by Kajikawa (Column 2, line 67 to Column 3, line 9 and Column 8, lines 22-30 and Examples 2 and 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the thermoplastic of the support of the backing and the bottom surface of the wear layer in Harwood as modified by Kauffman and Remmert those materials well known within the art as predictable for use in the alternative to EVA such as LDPE as evidenced by Kajikawa.

7. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harwood, Kauffman, and Remmert as applied to claims 21, 22, 27, and 29 above, and further in view of Yatsuka et al. (U.S. Patent 5,278,275).

Harwood, Kauffman, and Remmert as applied above teach all of the limitations in claims 24 and 25 except for a specific teaching of the top surface of the wear layer coated with polyurethane. However, including polyurethane as a layer in the wear layer is well known in the art as evidenced by Kauffman, and coating a layer with a polyurethane topcoat is known in to improve the heat resistance, light resistance, and toughness of the underlying material as evidenced by Yatsuka (Column 1, lines 6-21). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the wear layer taught by Harwood as modified by Kauffman and Yatsuka a top coated surface of polyurethane as such is not only conventionally known for inclusion in the wear layer as evidenced by Kauffman but improves the heat resistance, light resistance, and toughness of the wear layer as evidenced by Yatsuka

Response to Arguments

8. Applicant's arguments with respect to claims 21-29 have been considered but are moot in view of the new ground(s) of rejection.

The previous rejections are withdrawn in view of applicants amendment. The new claims are fully addressed above. It is further noted that Remmert does not require melting the thermoplastic layer into droplets such as when the product formed is part of a surface covering, i.e. carpet (Column 3, lines 60-66).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **JOHN GOFF** whose telephone number is **(571)272-1216**. The examiner can normally be reached on M-F (7:30 AM - 4:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Katarzyna Wyrozebski can be reached on (571) 272-1127. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JOHN GOFF/
Primary Examiner, Art Unit 1746